



Name \_\_\_\_\_ Date \_\_\_\_\_

## Study Guide

### Ratios and Rates

A ratio is a comparison of two numbers by division.

**Examples** Express each ratio in simplest form.

- 1 35 wins to 42 losses      The greatest common factor of 35 and 42 is 7.  
 $\frac{35}{42} = \frac{5}{6}$       Divide the numerator and denominator by 7.  
The ratio in simplest form is  $\frac{5}{6}$  or 5 : 6.

- 2 1 foot to 3 inches  
 $\frac{1 \text{ foot}}{3 \text{ inches}} = \frac{12 \text{ inches}}{3 \text{ inches}}$       The greatest common factor of 12 and 3 is 3.  
 $\frac{4 \text{ inches}}{1 \text{ inch}}$       Divide the numerator and denominator by 3.  
The ratio in simplest form is  $\frac{4}{1}$  or 4 to 1.

A rate is a ratio that compares two different units.

**Example 3** Express *Andres drove 300 miles in 6 hours* as a unit rate.

$$\frac{300 \text{ miles}}{6 \text{ hours}} = \frac{50 \text{ miles}}{1 \text{ hour}} \quad \text{Divide the numerator and denominator by 6.}$$

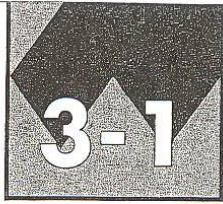
Andres drove at a rate of 50 miles per hour.

**Express each ratio or rate in simplest form.**

- |                           |                     |                |
|---------------------------|---------------------|----------------|
| 1. 12 wins:15 games       | 2. 8 out of 20 cars | 3. 65 to 10    |
| 4. 8 out of 10 people     | 5. 90 men:144 women | 6. 81 to 36    |
| 7. 180 tickets:60 tickets | 8. 4 feet:1 yard    | 9. 3 out of 24 |

**Express each rate as a unit rate.**

- |                           |                               |
|---------------------------|-------------------------------|
| 10. \$45 for 9 hours      | 11. 280 kilometers in 5 hours |
| 12. \$330 for 3 days      | 13. 432 beats in 6 minutes    |
| 14. 77 pounds in 11 weeks | 15. 480 miles in 12 hours     |



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## Practice

### ***Ratios and Rates***

***Express each ratio or rate in simplest form.***

1. 9 to 28
2. 30 out of 50 doctors
3. 84 students to 3 teachers
4. 22 players:2 teams
5. 15:50
6. 19 out of 76
7. 20 wins in 32 games
8. 4 boys to 6 girls
9. 5 days per calendar year
10. \$8 for 2 tickets
11. 14 wins:35 losses
12. 40 minutes per hour
13. 12 students:\$54
14. 18 inches:1 yard
15. 6 hits to 14 times at bat
16. 1 inch per 1 foot

***Express each rate as a unit rate.***

17. 104 miles in 8 hours
18. 124 cubic yards to 62 carts
19. \$84 saved in 7 weeks
20. 108 students in 3 classrooms
21. \$10.81 for 23 pounds
22. \$269.95 for 9 tickets
23. \$11.97 for 9 gallons
24. \$12.25 for 35 newspapers